

REMARKS/ARGUMENTS

The Examiner's Office Action and the cited references have been given careful consideration. Following such consideration, claim 1 has been amended. Claims 2-13 are unchanged by the present amendment. It is respectfully requested that the Examiner reconsider the claims in their present form, together with the following comments, and allow the application.

Please note that this Response accompanies a *Request for Continued Examination (RCE)*.

The present invention relates to a nozzle element for use in an industrial furnace for melting metals. As shown in FIGS. 1 and 2, a nozzle body 3 is formed of a refractory material. Nozzle body 3 includes a hot side 5 and a cold side 7. A metal jacket 9 is disposed on cold side 7 of nozzle body 3. A plurality of heat-conducting elements 11, 13, 15, 17, 17.1, 17.2 are embedded in nozzle body 3. Heat-conducting elements 11, 15, 17, 17.1, 17.2 each have an end that faces hot side 5. According to the present invention, the end of each of heat conducting elements 11, 15, 17, 17.1, 17.2 that faces hot side 5 is disposed a distance from hot side 5 of nozzle body 3. Heat conducting elements 11, 15, 17, 17.1, 17.2 are provided to absorb heat from hot side 5 and rapidly convey the heat to metal jacket 9.

The present invention thus provides a structure wherein an end of each of heat conducting elements 11, 15, 17, 17.1, 17.2 is disposed a distance from hot side 5 of nozzle body 3. As a result, heat conducting elements 11, 15, 17, 17.1, 17.2 do not contact the metal melt disposed in the industrial furnace. It is believed that by preventing contact with the metal melt, the present invention provides a structure that extends the useful life of heat conducting elements 11, 15, 17, 17.1 and 17.2.

The Examiner has rejected claims 1-10 and 13 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,371,759 to Wells et al.

The '759 patent discloses a hearth electrode 9 for better cooling and improving the starting conditions of a direct current arc furnace. As best seen in FIG. 2, hearth electrode 9 is disposed in an electrode block 10. Hearth electrode 9 is comprised of a plurality of metal bars 11. Each metal bar 11 is disposed in a tube 18. One end of tube 18 is attached to electrode block 10. Another end of tube 18 extends to a surface, i.e., a "hot side," of electrode block 10. In other words, tubes 18 extend from a "hot side" of electrode block 10 to a "cold side" of electrode block

10. Tubes 18 in the '759 patent are provided to allow a gas to flow from the "cold side" of electrode block 10 to a "hot side" of electrode block 10. It is respectfully submitted that the '759 patent does not teach, suggest or show heat-conducting elements for absorbing heat and rapidly conveying the heat to a metal jacket wherein an end of each of the heat conducting elements that faces a hot side of the nozzle body is disposed a distance from the hot side of the nozzle body, as defined in claim 1.

Claims 2-10 and 13 depend from claim 1 and should be allowed for at least the same reasons stated above for claim 1.

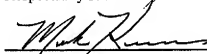
The Examiner has rejected claims 11 and 12 under 35 U.S.C. 103(a) as being unpatentable over the '759 patent in view of U.S. Patent No. 5,465,942 to Wells et al. The '942 patent discloses an arrangement for the introduction of agents into a molten bath. It is respectfully submitted that the '942 patent fails to teach, suggest or show the deficiencies noted above regarding the '759 patent. Claims 11 and 12 depend from claim 1. Therefore, claims 11 and 12 are allowable for at least the same reasons stated above for claim 1.

In view of the foregoing comments, it is respectfully submitted that the present application is now in proper condition for allowance. If the Examiner believes there are any further matters that need to be discussed in order to expedite the prosecution of the present application, the Examiner is invited to contact the undersigned.

If there are any fees necessitated by the foregoing communication, please charge such fees to our Deposit Account No. 50-0537, referencing our Docket No. BE9264PCT(US).

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Respectfully submitted,



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